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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,920	04/01/2004	James Albert Davis	038190/251160	9434
67141	7590	10/04/2007		
ALSTON & BIRD, LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			EXAMINER RUDE, TIMOTHY L	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 10/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,920

Applicant(s)

DAVIS, JAMES ALBERT

Examiner

Timothy L. Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 9-13 and 14-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 July 2007 has been entered.

Claims

Claims 1 and 14 are amended.

Election/Restrictions

Claim 14 is now directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Amendment of claim 14 results in dependency upon withdrawn claim 9, drawn to species D, non-elected by Applicant without traverse in the response filed 29 March 2006.

Please note, straight flexible tubing is considered capable of being mounted in a serpentine manner and yet it reads on elected species F. However, a structure wherein the tubing is actually structured in a serpentine manner reads on non-elected species D.

Applicant has elected the structure as shown in Figure 6. Limitations drawn to other structure not found in Figure 6 is non-elected. Applicant may file a Divisional Application to pursue non-elected species of the invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 9-13 and 15 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

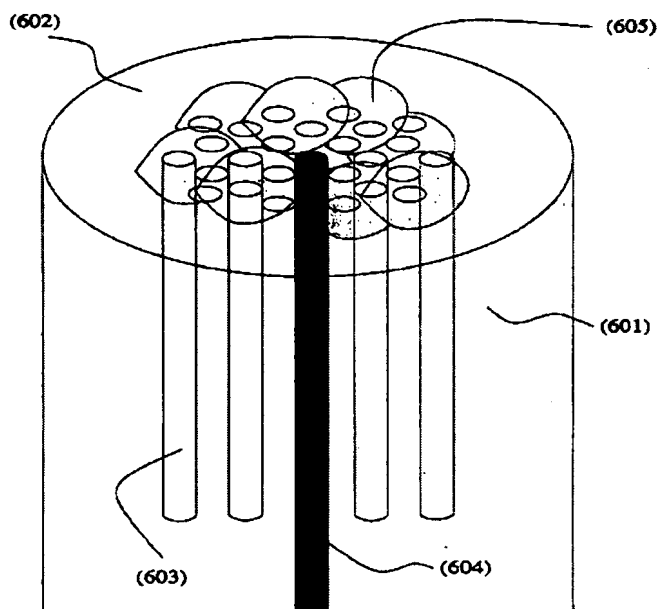
Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjarklev et al (Bjarklev) US PG PUB 2005/0111804 A1 in view of Hollister et al (Hollister) US PAT 6,377,591 B1.

As to claim 1, Bjarklev discloses a system (device) for cooling a fiber amplifier, the system comprising: a fiber amplifier assembly [0016] wherein the fiber has a core and a cladding [Abstract]

Please note that a conventional fiber amplifier comprises a core and a cladding (well known in the art at the time the claimed invention was made) as is acknowledged by Applicant's Admitted Prior Art (APA) in the Specification, page 1, line 25 through page 3, line 22, and as shown in Figures 1 and 2.

comprising: a longitudinally-extending fiber amplifier [with a core and a cladding]; a jacket surrounding the fiber amplifier and extending at least partially longitudinally therealong, wherein the jacket surrounds the fiber amplifier such that the fiber amplifier assembly defines a passage between the jacket and the fiber amplifier for the circulation of coolant therethrough; and a retaining structure disposed within the passage defined by the fiber amplifier assembly for at least partially maintaining a spacing between the fiber amplifier and jacket, e.g., [0148] and [0183].

Fig. 6



Bjarklev does not explicitly disclose a system wherein the retaining structure and coolant comprise an emulsion of phase change material.

Hollister teaches the use of a micro-encapsulated phase change material [col. 2, line 59 through col. 3, line 4] to improve cooling system performance (better temperature control).

Hollister is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a phase change material to the retaining structure and the coolant to improve cooling system performance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Bjarklev with the phase change material of Hollister added to the retaining structure and the coolant to improve cooling system performance.

As to claim 3, Hollister, as combined above, teaches a system according to claim 2, wherein the thermal management system is capable of placing coolant in thermal communication with the fiber amplifier such that the coolant is capable of carrying heat away from the fiber amplifier, and wherein the thermal management system is capable of rejecting the heat carried away by the coolant [col. 2, line 59 through col. 3, line 4].

As to claim 4, Hollister, as combined above, teaches a system according to claim 3, wherein the thermal management system is capable of placing coolant in thermal communication with the fiber amplifier such that the coolant is capable of at least partially melting to thereby carry heat away from the fiber amplifier, and wherein the thermal management system is capable of condensing at least a portion of the at least partially melted coolant to thereby reject the heat carried away by the coolant [col. 2, line 59 through col. 3, line 4].

As to claim 5, Bjarklev, as combined above, teaches a system according to claim 1, wherein the fiber amplifier assembly defines a passage between the jacket and the fiber amplifier for the circulation of coolant selected to have a refractive index smaller than a refractive index of the fiber amplifier [0022] ~ [0025].

As to claim 6, Hollister, as combined above, teaches a system according to claim 1, wherein the emulsion of phase change material comprises a plurality of phase change materials suspended in a carrier fluid, wherein each phase change material comprises an encapsulated composition [col. 2, line 59 through col. 3, line 4].

As to claim 14, Hollister, as combined above, teaches a system according to claim 6, wherein the fiber amplifier is capable of being mounted in a serpentine manner through the at least one sheet spacer to define a passage between the portions of the

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fiber amplifier for the circulation of coolant comprising an emulsion of phase change material [col. 2, line 59 through col. 3, line 4].

Allowable Subject Matter

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 7, relevant prior art of record did not disclose, alone or in combination, the system for cooling a fiber amplifier as claimed comprising phase change materials that are positioned within the passage such that the phase change materials remain at least partially stationary.

As to claim 8, it is dependent upon claim 7 with allowable subject matter above.

Response to Arguments

Applicant's arguments filed on 19 July 2007 have been fully considered but they are not persuasive.

Applicant's ONLY substantive arguments are as follows:

A. Claims 9-15 are not directed to species D.

A. Regarding base claim 1, applied prior art does not teach 1) a jacket surrounding the fiber amplifier (with its core and cladding) to thereby define a passage for the circulation of coolant, and 2) further including a retaining structure within the passage for at least partially maintaining spacing between the fiber amplifier and the jacket.

Dependent claims are allowable because they directly or indirectly depend from an allowable base claim.

Examiner's responses to Applicant's ONLY arguments are as follows:

A. It is respectfully pointed out that limitations to claims 9-15 are drawn to a non-elected species. Examiner interpreted the claims broadly at the time of withdrawal as reading on non-elected species D. It is examiner's duty to interpret claims broadly. Applicant may feel claims 9-15 also read on something else, but that is a moot point. The limitations of claims 9-15 are drawn to a species other than elected species F, Figure 6, as acted upon its merits in any case. Claims 9-15 are also subject to withdrawal based upon original presentation of claims. Clearly claims 9-15 are withdrawn because they are not generic and they do not read exclusively on elected

species F as shown in Figure 6. Applicant may file a Divisional Application to pursue species alternate to elected species F as shown in Figure 6.

A. It is respectfully pointed out that the primary reference teaches a structure wherein there is a jacket surrounding the fiber amplifier to thereby define a passage for the circulation of coolant (several passages are shown), and 2) further including a retaining structure within the passage for at least partially maintaining spacing between the fiber amplifier and the jacket (structure maintaining spacing between passages as shown). Please note that Applicant's claims are in comprising format wherein additional passages are permissible and wherein making integral is not considered patentably distinct. As claimed, there may be several passages for coolant and the jacket may be integral to the cladding and retaining structure. Please also note that a conventional fiber amplifier comprises a core and a cladding (well known in the art at the time the claimed invention was made) as is acknowledged by Applicant's Admitted Prior Art (APA) in the Specification, page 1, line 25 through page 3, line 22, and as shown in Figures 1 and 2. Therefore, this conventional configuration of fiber amplifier would be obvious to one of ordinary skill in the art. A rejection under 35 U.S.C. 103(a) 35 U.S.C. 103(a) is not a "multi-reference 102" rejection. A rejection under 35 U.S.C. 103(a) 35 U.S.C. 103(a) is based upon what one of ordinary skill in the art would find obvious given the teachings of the applied prior art. Clearly one of ordinary skill in the art would know that one could use a fiber amplifier with a core and a cladding, because that is (and was) a very common configuration of a fiber amplifier. Also, Bjarklev discloses a core and a cladding in the Abstract. The invention of Bjarklev can

take on any of a number of reasonable configuration alternatives without departing from the scope of the specific examples. The specific illustrative examples of Bjarklev do not limit the patent protection of Bjarklev and which do not render other reasonable configurations non-obvious to those of ordinary skill. (see Bjarklev, paragraph [0188]).

It is respectfully pointed out that Hollister's teaching is directed to a number of satisfactory embodiments for providing superior temperature control such that optical amplification modules can operate independently without producing a thermal signature or without requiring power input or power generation during operation. Clearly one of ordinary skill in the art would understand the teachings of Hollister regarding the advantages of using a phase change material that is well known to have a latent heat value associated with its phase change [property of physics].

It is respectfully pointed out that in so far as Applicant has not argued rejection(s) of the limitations of dependent claim(s), Applicant has acquiesced said rejection(s).

Any references cited but not applied are relevant to the instant Application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Timothy L Rude
Examiner
Art Unit 2871

tlr

T. L. Rude
9/30/07